Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

THE BRYOLOGIST

Vol. XIV MARCH 1911 No. 2

NEW ENGLAND LOPHOZIAS OF THE MUELLERI-GROUP

ANNIE LORENZ.

[Presented at the Sullivant Moss Society Meeting, Minneapolis, Dec. 28, 1910.]

Schiffner[1], in one of his most brilliant papers, discusses the tangled limestone Lophozias known as the Muelleri-group, or as Müller[2] calls them, § *Leiocolea* of *Lophozia.* He takes up nineteen species as given by various authors, and concentrates them into seven, so clearly that each requires but a few words of characterization; while Müller, in Lieferung 12, follows him closely.

Dr. Evans[3] says of this group "leaves always bifid; underleaves more or less developed, even on slender stems; perichaetial bracts usually but little differentiated from the leaves; perianth cylindrical or barrel-shaped, terete (or slightly plicate in the upper part), contracted into a tubular beak; perigonial bracts with a third dorsal tooth."

Of the seven, all but one, the southern-ranging *Lophozia turbinata* (Raddi) St., are reported from North America. Two are now known from New England, *L. Kaurini* (Limpr.) St., and *L. badensis* (Gottsche) Schiffn. The writer had the good fortune to discover the former on July 4, 1910, in Quechee Gulf, Hartford, Vermont, during the summer meeting of the Vermont Botanical Club, and it is reported by Dr. Evans in Rhodora for October, 1910. This is the second station known from North America, the previous one being at Hunker Creek, Yukon Territory, [4] where Macoun collected it.

The plants agree very closely with the original specimens collected by Kaurin at Opdal, Luengen, Norway, which were also the blunt-lobed form. This may explain why Limpricht considered this as the type, instead of the commoner acute-lobed form, which he called var. *acutifolia;* whereupon Müller comments. [5]

Quechee Gulf has been worn down by the Ottaquechee River to a depth of about 100 ft. in the deepest part, through calciferous mica schist containing some hornblende; the Gulf is also crossed slantingly by a trap dyke. *Lophozia Kaurini* was plentiful upon the damp, sunny ledges of the Gulf, and bore abundant young perianths, with their noticeable beaks. These plants were of an olive-yellowish-green shade, rather than a bright green.

---

[1] Verhandl. der K. K. Zool.-botan. Gesellsch. in Wien **54**:381-405. 1904.

[2] Rabenhorst's Kryptogamen-Flora **6**:711. 1910.

[3] Rhodora **8**:35. 1906.

[4] Evans, Yukon Hepaticae, p. 20. 1903.

[5] Rabenhorst's Kryptogamen-Flora **6** : 719, 1910.

Associated with them were *Preissia quadrata, Pellia Fabroniana, Lophozia badensis*(Gottsche) Schiffn., which will be considered later. *Plagiochila asplenioides, Lophocolea minor, Scapania nemorosa, Rhabdoweisia denticulata, Distichium capillaceum, Mnium sp., Myurella Careyana, Tofieldia palustris, Parnassia Caroliniana, Erigeron hyssopifolius.*

Kaalaas* who, of all the European writers, gives the most careful and necessarily detailed description of the habitats of the various species, speaks of *Lophozia Kaurini* as follows:—"This plant, which already for over fifty years past has been collected in Norway, but only recently has been recognized as a separate species, grows on shady, moss-grown, somewhat damp cliffs, by brooks and water, as well as upon damp sandy soil, as a rule on a substratum of loose clay schist; according to Arnell, it is said also to occur on limestone, and occasionally upon rotten trunks. But seldom are there pure tufts of any great extent, it grows most often mixed with different mosses, most frequently perhaps in company with *Sphenolobus politus.* The species belongs essentially to the arctic and alpine flora and seems to have a very wide distribution in Norway's mountain region, * * * in the higher-lying regions where schists form the mountain structure, it seems to be tolerably common."

"Its most frequent occurrence seems to be in the uppermost part of the forest region and in the birch belt, or, in the middle of Norway, from 5-800 m. alt., but it climbs also up above timberline into the alpine region. * * * The species is commonly with perianths and fruit, which develops in July-August. Like most species of the Muelleri-group, *L. Kaurini* possesses also in fresh condition a strongly aromatic odor."

Bernet [1] describes it under the name of *Lophozia Mulleri paroica* Bernet, and gives an excellent plate, but as the Vermont plants are referable rather to var. *obtusiloba,* some figures are given with these notes.

Limpricht [2] says "Perichaetial bracts not larger than the neighboring leaves," but Müller [3] says "Hüllblatter kielig gefaltet, etwas grösser als die anderen Blätter," and this agrees with the Vermont plants.

Schiffner [4] dismisses it with a list of references, and the remark "It is certainly a good species."

Lindb. & Arnell [5] give stations, "At Uskij-mys on damp clay-slate rocks with *Lophozia Lyoni, Reboulia,* and *Pohlia cruda:* * * * on a damp rotten trunk with *L. heterocolpos* and *Blepharostoma*, * * * on damp limestone; on the Nikandrovsky Island abundant on slimy mucky ground with *Leptobryum*, &c."

---

*. De Distr. Hep. in Norv. p. 363, 1893.

[1] Cat. Hep. de la Sud-ouest de la Suisse, pl. 3. 1888.

[2] 61. Jahresber. der Schlesischen Ges. fur Vaterl. Culture. 1884.

[3] Rabenhorst's Kryptogamen-Flora **6**: 1910.

[4] Verhandl. der K. K. Zool. botan. Gesellsch. in Wein. 1904.

[5] Musci As. Bor. p. 45. 1889

Macvicar[1] states that *Lophozia Kaurini* is very rare in Scotland, but one station being known, in Caithness.

Lophozia Kaurini is to be expected among the limestone portions of the Berkshires, and perhaps also in the practically unexplored region of northern Maine.

Lophozia badensis (Gottsche) Schiffn. to which reference is made in the beginning of this paper, was also abundant on the damp rocks of Quechee Gulf, growing mixed chiefly with *Rhabdoweisia*. Although our smallest species of this group, it is easily recognizable in the field by its neat and characteristic little perianths.

In Rhodora for October, 1910, Dr. Evans reports this new station, and as his plants from Salisbury, Conn., which he had formerly referred to *Lophozia Muelleri* (Nees) Dum., agree closely with these, he revises his previous determination, thus omitting entirely *L. Muelleri* itself from the New England List.

While *L. Muelleri* and *L. badensis* are very closely related, most of the European writers consider them distinct, and of these Schiffner[2] is the most emphatic.

Besides the differences upon which weight is usually laid, in that *L. badensis* has slightly larger leaf-cells with smaller trigones, and the lack of under leaves, he gives what he considers an absolute proof of their right to be separate species, namely, the respective forms of their ♂ inflorescences.

In refuting the views of some writers, that *L. badensis* is only a depauperate or juvenile form of *L. Muelleri*, he says "that the unusual fertility of the plant speaks decidedly against both these views." Then he describes some Austrian specimens, coll. Baumgartner, which appeared to be intermediate between *L. badensis* and *L. Muelleri*. But, "the few ♂ plants show the andrœcium compressed into a thick bud on the tip of the stem * * *. This form of andrœcium is extraordinarily characteristic of *L. Muelleri*, and is totally different from the arrangements of *L. badensis*, in which the andrœcium is intercalary, the perigonial bracts widely separated, and of quite different form (the ♂ plants, in my opinion, offer a safe and sure method of distinguishing small forms of *L. Muelleri* from *L. badensis*)."

These Vermont plants have intercalary andrœcia of exactly this loosely-leaved description, such ♂ bracts as are near the tips of the stems are very young and not imbricated.

---

[1] Trans. Bot. Soc. of Edinburgh, **25**: 141. 1910.

[2] Ber. d. natur—med. Verein "Lotos," p. 31. 1905.

Kaalaas[1] gives the following as the habitat of *L. badensis:* "This species occurs as it seems upon slightly damp and sandy earth, on thinly earth-covered cliffs, in humus-filled mountain crevices, etc., on a substratum of rocks containing more or less lime. * * * *L. badensis* is not rare with us, in such regions, * * * and it occurs especially in the northern part of the country. * * * As a rule it is found with perianths, and frequently also with fruit."

Schiffner[2] declares that *L. badensis* and the southern *L. turbinata* (Raddi) St., have until very recently been confused, even by careful writers like Bernet and Warnstorf. Lindberg[3], however, in a most excellent manner sets forth their differences and gives diagnoses of both. After describing them he says of then respectively;

L. badensis. "Terras septentrionáles praefert," and gives a long list of Scandinavian stations.

L. turbinata. "Terras meridionales et occidentales praefert, nondum intra fines florae scandinavieae reperta, ubi tamen antecedens nullo modo rara esse videtur, ut loca supra relata demonstrant."

Macvicar[4] gives a number of stations for *L. badensis* and says that in Scotland it is found only upon low ground.

Müller[5] in Heft 12, gives a very good list of the differences between *L. badensis* and *L. Muelleri,* as well as some figures of each species.

As for its North American distribution, Dr. Evans[6] gives it, "from King Oscar Land and Ellesmere Land from along the Montmorency River, Quebec, coll. Macoun;" from Ithaca New York, coll. Andrews; "probably has an extensive range in North America."

Hitchcock, in his Geology of Vermont (1861) describes such a variety of geological formations within the state as easily explains why, with but little systematic exploration, Vermont has so many rarities credited to her list. Her limestone hills and swamps ought to yield all further possible members of the Muelleri group—surely *L. Muelleri* (Nees) Dum. itself, and *L. Schultzii* (Nees) Schiffn.

Since, however, in comparing specimens, all Vermont mosses resemble more closely those from Norway than from any other part of Europe, perhaps it is not unreasonable to expect that a large proportion of Norway's rich hepatic flora must occur in Vermont.

In conclusion, the writer will be very glad of material of any species of this group for examination, from any part of North America, as this group has hitherto been sparingly collected in America.

Hartford, Connecticut, November, 1910.

---

[1] De Distr. Hep. in Norv., p. 351. 1893.

[2] Verhandlungen der K. K. Zool.bot. Gesellesch in Wien, **54**: 394-5. 1904.

[3] Musci. Asiae Bor. I: p. 46. 1889.

[4] Trans. Bot. Soc. of Edinburgh, **25**: 138. 1910.

[5] Rabenhorst's Kryptogamen-Flora, **6**: 733. 1910.

[6] Bryologist, **13**: 343, Mar. 1910.

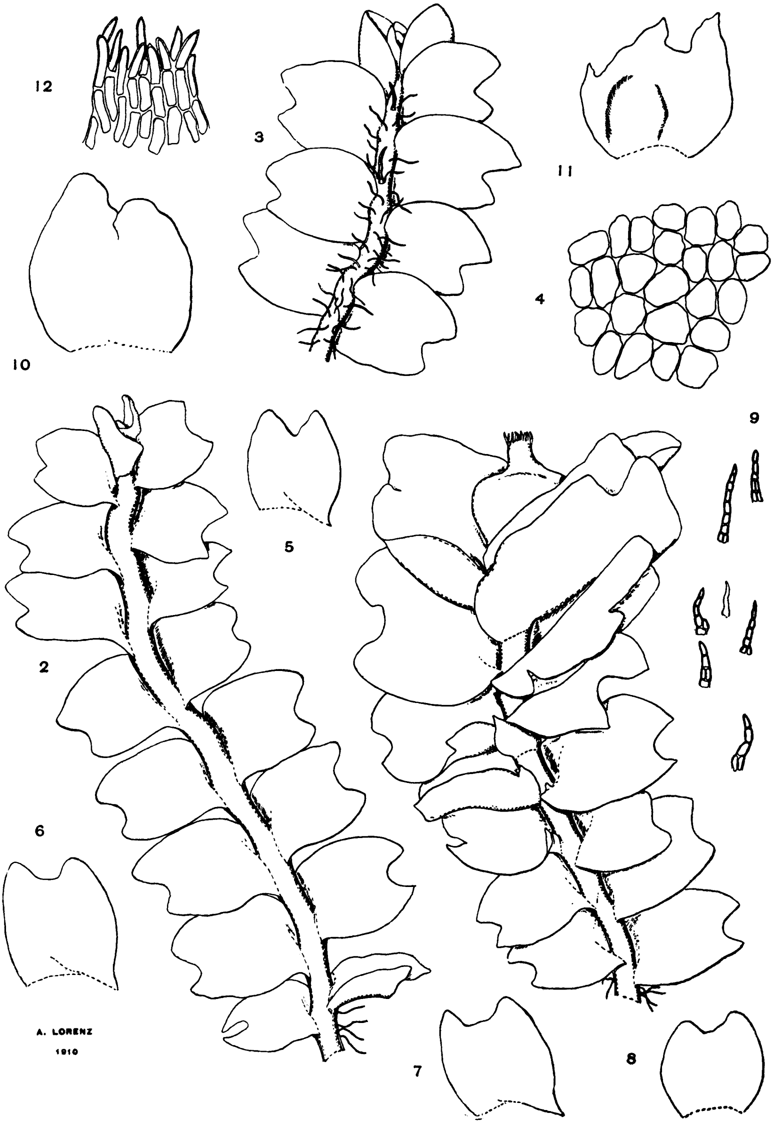

PLATE IV. *Lophozia Kaurini*

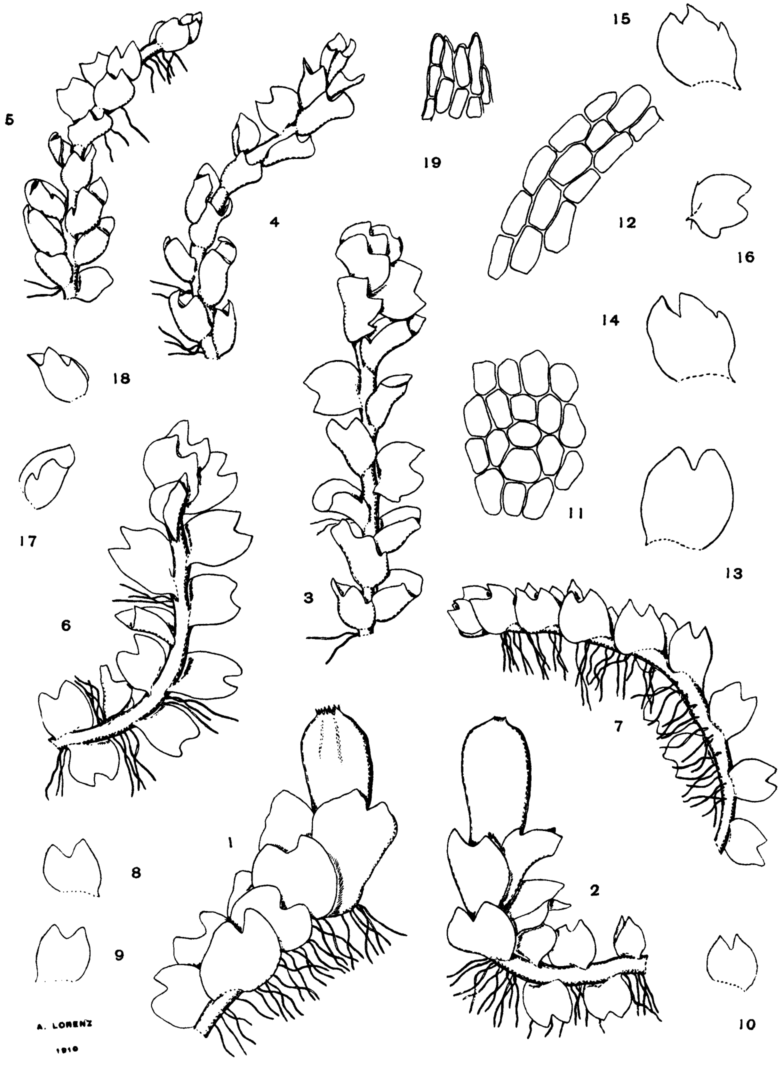

PLATE V. *Lophozia badensis*

EXPLANATION OF PLATE IV

Lophozia Kaurini (Limpr.) St.

1. Plant with perianth and ♂ bracts. × 87.
2. Sterile plant. × 87.
3. Plant, postical view, showing underleaves. × 87.
4. Leafcells. × 570.

5, 6, 7, 8. Leaves. × 87.

9. Underleaves. × 87.
10. Perichaetial bract. × 87.
11. Perigonial bract. × 87,
12. Cells from mouth of perianth. × 87.

All reduced to two-fifths original size.

All figures from specimens (No. 769) collected by the writer at Hartford, Vermont.

EXPLANATION OF PLATE V

Lophozia badensis (Gottsche) Schiffn.

1, 2 Plants with perianths. × 87.
3, 4, 5. Plants with androecia. × 87.
6, 7. Sterile plants. × 87.
8, 9, 10. Leaves. × 87.
11. Leaf-cells. × 570.
12. Cells of outer layer of stem. × 570.
13, 14, 15. Perichaetial bracts. × 87.
16, 17, 18. Perigonial bracts. × 87.
19. Cells from mouth of perianth. ×570.
All reduced to two-fifths original size.

All figures from specimens (No. 770) collected by the writer at Hartford, Vermont.

A NEW GRIMMIA OF THE SECTION SCHISTIDIUM

JOHN M. HOLZINGER.

[Read at the meeting of the S. M. S., Minneapolis, Dec. 28, 1910.]

In the July (1910) issue of the Bryologist I reported "Some Additions to the Moss Flora of the United States." Among these was a plant collected in 1904 by G. C. Britton near Catala, Alaska, and communicated to me by Prof. J. B. Flett as No. 5. As it differed from the Schistidiums I knew, I tried to "match" it with some of the arctic species, European and American. On close comparison it was found to be identical with No. 80a of Canadian Mosses distributed by Prof.